

WHAT IS CLAIMED IS:

1. A liquid crystal display device, comprising:
an emitter for illuminating pixels with light
which is in accordance with a driving signal; and

emission control means for controlling the driving
signal so that a rise and a fall of an emission
waveform of the emitter are slacked per one vertical
period.

2. The liquid crystal display device as set forth
in claim 1, wherein said emission control means slacks
a rise and a fall of a waveform of the driving signal.

3. The liquid crystal display device as set forth
in claim 1, wherein said emission control means slacks
a rise and a fall of an envelope of a waveform of the
driving signal.

4. The liquid crystal display device as set forth
in claim 1, wherein said emission control means is
adapted so that a rise and a fall of a waveform of the
driving signal essentially become part of a sinusoidal
wave.

5. The liquid crystal display device as set forth

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in claim 1, wherein said emission control means is adapted so that a rise and a fall of an envelope of a waveform of the driving signal essentially become part of a sinusoidal wave.

6. A liquid crystal display device, comprising:
an emitter for illuminating pixels with light which is in accordance with a driving signal; and
emission control means for controlling the driving signal so that the driving signal makes up a sinusoidal wave whose frequency essentially matches an inverse of a vertical period.

7. A liquid crystal display device, comprising:
an emitter for illuminating pixels with light which is in accordance with a driving signal; and
emission control means for controlling the driving signal so that the driving signal makes up a sinusoidal wave whose envelope has a frequency which essentially matches an inverse of a vertical period.

8. A liquid crystal display device, comprising:
an emitter for illuminating pixels with light which is in accordance with a driving signal; and
emission control means for controlling the driving

signal so that the driving signal makes up a Gaussian distribution waveform whose repetitive period essentially matches a vertical period.

9. A liquid crystal display device, comprising:
an emitter for illuminating pixels with light which is in accordance with a driving signal; and
emission control means for controlling the driving signal so that the driving signal makes up a Gaussian distribution waveform whose envelope has a repetitive period which essentially matches a vertical period.

10. A liquid crystal display device, comprising:
an emitter for illuminating pixels with light which is in accordance with a driving signal; and
emission control means for controlling the driving signal so that the driving signal makes up a Lorentz distribution waveform whose repetitive period essentially matches a vertical period.

11. A liquid crystal display device, comprising:
an emitter for illuminating pixels with light which is in accordance with a driving signal; and
emission control means for controlling the driving signal so that the driving signal makes up a Lorentz

distribution waveform whose envelope has a repetitive period which essentially matches a vertical period.

12. A liquid crystal display device, comprising:
an emitter for illuminating pixels with light which is in accordance with a driving signal; and
emission control means for controlling the driving signal so that the driving signal makes up a triangular wave whose frequency essentially matches an inverse of a vertical period.

13. A liquid crystal display device, comprising:
an emitter for illuminating pixels with light which is in accordance with a driving signal; and
emission control means for controlling the driving signal so that the driving signal makes up a triangular wave whose envelope has a frequency which essentially matches an inverse of a vertical period.

14. The liquid crystal display device as set forth in claim 1, wherein said emitter is one of a cold cathode tube, a light-emitting diode, an electroluminescence element, a hot cathode tube, a mercury lamp, a halogen lamp, and a laser.

15. The liquid crystal display device as set forth in claim 6, wherein said emitter is one of a cold cathode tube, a light-emitting diode, an electroluminescence element, a hot cathode tube, a mercury lamp, a halogen lamp, and a laser.

16. The liquid crystal display device as set forth in claim 7, wherein said emitter is one of a cold cathode tube, a light-emitting diode, an electroluminescence element, a hot cathode tube, a mercury lamp, a halogen lamp, and a laser.

17. The liquid crystal display device as set forth in claim 8, wherein said emitter is one of a cold cathode tube, a light-emitting diode, an electroluminescence element, a hot cathode tube, a mercury lamp, a halogen lamp, and a laser.

18. The liquid crystal display device as set forth in claim 9, wherein said emitter is one of a cold cathode tube, a light-emitting diode, an electroluminescence element, a hot cathode tube, a mercury lamp, a halogen lamp, and a laser.

19. The liquid crystal display device as set forth

in claim 10, wherein said emitter is one of a cold cathode tube, a light-emitting diode, an electroluminescence element, a hot cathode tube, a mercury lamp, a halogen lamp, and a laser.

20. The liquid crystal display device as set forth in claim 11, wherein said emitter is one of a cold cathode tube, a light-emitting diode, an electroluminescence element, a hot cathode tube, a mercury lamp, a halogen lamp, and a laser.

21. The liquid crystal display device as set forth in claim 12, wherein said emitter is one of a cold cathode tube, a light-emitting diode, an electroluminescence element, a hot cathode tube, a mercury lamp, a halogen lamp, and a laser.

22. The liquid crystal display device as set forth in claim 13, wherein said emitter is one of a cold cathode tube, a light-emitting diode, an electroluminescence element, a hot cathode tube, a mercury lamp, a halogen lamp, and a laser.

23. An emitter driving method for slacking a rise and a fall of a driving signal of an emitter provided

in a liquid crystal display device.

24. An emitter driving method for slacking a rise and a fall of an envelope of a driving signal of an emitter provided in a liquid crystal display device.

25. The emitter driving method as set forth in claim 23, wherein a driving signal line associated with the driving signal is grounded via a capacitor.

26. The emitter driving method as set forth in claim 24, wherein a driving signal line associated with the driving signal is grounded via a capacitor.

27. An emitter driving method for converting a driving signal of an emitter provided in a liquid crystal display device into a periodic waveform which is in synchronism with a vertical synchronize signal.

28. An emitter driving method for converting an envelope of a driving signal of an emitter provided in a liquid crystal display device into a periodic waveform which is in synchronism with a vertical synchronize signal.

29. The emitter driving method as set forth in claim 27, wherein a rise and a fall of the periodic waveform make up part of a sinusoidal wave.

30. The emitter driving method as set forth in claim 28, wherein a rise and a fall of the periodic waveform make up part of a sinusoidal wave.

31. The emitter driving method as set forth in claim 27, wherein the periodic waveform is essentially a sinusoidal wave.

32. The emitter driving method as set forth in claim 28, wherein the periodic waveform is essentially a sinusoidal wave.

33. The emitter driving method as set forth in claim 27, wherein the periodic waveform is essentially a triangular wave.

34. The emitter driving method as set forth in claim 28, wherein the periodic waveform is essentially a triangular wave.

35. The emitter driving method as set forth in

claim 27, wherein the periodic waveform is essentially a repetition of a Gaussian distribution waveform.

36. The emitter driving method as set forth in claim 28, wherein the periodic waveform is essentially a repetition of a Gaussian distribution waveform.

37. The emitter driving method as set forth in claim 27, wherein the periodic waveform is essentially a repetition of a Lorentz distribution waveform.

38. The emitter driving method as set forth in claim 28, wherein the periodic waveform is essentially a repetition of a Lorentz distribution waveform.

39. An emitter which receives a driving signal with slacked rise and fall.

40. An emitter which receives a driving signal with slacked rise and fall of its envelope.

41. An emitter which receives a driving signal having a periodic waveform which is in synchronism with a vertical synchronize signal.

the periodic waveform is essentially a repetition of a Gaussian distribution waveform.

50. The emitter as set forth in claim 42, wherein the periodic waveform is essentially a repetition of a Gaussian distribution waveform.

51. The emitter as set forth in claim 41, wherein the periodic waveform is essentially a repetition of a Lorentz distribution waveform.

52. The emitter as set forth in claim 42, wherein the periodic waveform is essentially a repetition of a Lorentz distribution waveform.

53. A liquid crystal display device which is provided, per one vertical period, with a period of reduced luminance of light for illuminating pixels, said liquid crystal display device comprising:
an emitter which independently emits at least one of three primary colors of light.

54. The liquid crystal display device as set forth in claim 53, wherein said emitter which independently emits at least one color emits only green among the

three primary colors.

55. The liquid crystal display device as set forth in claim 53, further comprising:

emission control means for controlling at least one of a period in which luminance of light is not reduced and an amplitude of the luminance of light of the emitter.

56. The liquid crystal display device as set forth in claim 53, wherein said emitter is one of a cold cathode tube, an electroluminescence element, and a hot cathode tube.

57. A liquid crystal display device, comprising:

a plurality of cold cathode tubes, containing fluorescent materials, for illuminating pixels with light which is in accordance with driving signals; and

emission control means for controlling the driving signals so that changes in luminance of the plurality of cold cathode tubes with respect to time substantially coincide with one another in the vicinity of rise time and fall time per one vertical period,

wherein:

at least one of the plurality of cold cathode

tubes contains only a fluorescent material of one color among three primary colors of light, and the driving signal applied to this cold cathode tube is controlled by said emission control means.

58. A liquid crystal display device, comprising:

a first cold cathode tube and a second cold cathode tube, respectively containing fluorescent materials, for illuminating pixels with light which is in accordance with driving signals; and

emission control means for controlling the driving signals so that changes in luminance of the plurality of cold cathode tubes with respect to time substantially coincide with one another in the vicinity of rise time and fall time per one vertical period,

wherein:

said first cold cathode tube contains only a fluorescent material of green among three primary colors of light, and said second cold cathode tube contains fluorescent materials of red and green among the three primary colors of light, and the driving signals respectively applied to said first and second cold cathode tubes are controlled by said emission control means.

59. A liquid crystal display device, comprising:

first through third cold cathode tubes, respectively containing fluorescent materials, for illuminating pixels with light which is in accordance with driving signals; and

emission control means for controlling the driving signals so that changes in luminance of the plurality of cold cathode tubes with respect to time substantially coincide with one another in the vicinity of rise time and fall time per one vertical period,

wherein:

said first cold cathode tube contains only a fluorescent material of green among three primary colors of light, said second cold cathode tube contains only a fluorescent material of red among three primary colors of light, and said third cold cathode tube contains only a fluorescent material of blue among three primary colors of light, and the driving signals respectively applied to said first through third cold cathode tubes are controlled by said emission control means.

60. The liquid crystal display device as set forth in claim 59, wherein said emission control means controls the respective driving signals so as to set

forward respective emission timings of said first through third cold cathode tubes in this order.

61. The liquid crystal display device as set forth in claim 59, wherein said emission control means controls the respective driving signals so as to set forward respective dimming timings of said first through third cold cathode tubes in this order.

62. The liquid crystal display device as set forth in claim 59, wherein said emission control means controls the respective driving signals so that an emission timing of said third cold cathode tube becomes later than emission timings of the other cold cathode tubes.

63. The liquid crystal display device as set forth in claim 59, wherein said emission control means controls the respective driving signals so that a dimming timing of said third cold cathode tube becomes later than dimming timings of the other cold cathode tubes.

64. The liquid crystal display device as set forth in claim 53, wherein said emitter emits only blue among

the three primary colors of light.

65. A liquid crystal display device, comprising:

a first cold cathode tube and a second cold cathode tube, respectively containing fluorescent materials, for illuminating pixels with light which is in accordance with driving signals; and

emission control means for controlling the driving signals so that changes in luminance of the plurality of cold cathode tubes with respect to time substantially coincide with one another in the vicinity of rise time and fall time per one vertical period,

wherein:

said first cold cathode tube contains fluorescent materials of green and red among three primary colors of light, and said second cold cathode tube contains only a fluorescent material of blue among the three primary colors of light, and the driving signals respectively applied to said first and second cold cathode tubes are controlled by said emission control means.

66. The liquid crystal display device as set forth in claim 58, wherein said emission control means controls the respective driving signals so that an

emission timing of said first cold cathode tube is earlier than emission timings of the other cold cathode tubes.

67. The liquid crystal display device as set forth in claim 59, wherein said emission control means controls the respective driving signals so that an emission timing of said first cold cathode tube is earlier than emission timings of the other cold cathode tubes.

68. The liquid crystal display device as set forth in claim 65, wherein said emission control means controls the respective driving signals so that an emission timing of said first cold cathode tube is earlier than emission timings of the other cold cathode tubes.

69. The liquid crystal display device as set forth in claim 58, wherein said emission control means controls the respective driving signals so that a dimming timing of said first cold cathode tube is earlier than dimming timings of the other cold cathode tubes.

70. The liquid crystal display device as set forth in claim 59, wherein said emission control means controls the respective driving signals so that a dimming timing of said first cold cathode tube is earlier than dimming timings of the other cold cathode tubes.

71. The liquid crystal display device as set forth in claim 65, wherein said emission control means controls the respective driving signals so that a dimming timing of said first cold cathode tube is earlier than dimming timings of the other cold cathode tubes.

72. A driving method of a liquid crystal display device which is provided with a period of reduced luminance of light for illuminating pixels per one vertical period, and which includes an emitter for independently emitting at least one of three primary colors of light,

said method controlling at least one of a period in which luminance of light is not reduced and an amplitude of the luminance of light of the emitter.

73. A driving method of a liquid crystal display

device which includes a plurality of cold cathode tubes, containing fluorescent materials, for illuminating pixels with light which is in accordance with driving signals, and in which the driving signals are controlled so that changes in luminance of the plurality of cold cathode tubes with respect to time substantially coincide with one another in the vicinity of rise time and fall time per one vertical period,

said method controlling the driving signal which is applied to at least one of the plurality of cold cathode tubes which contains only a fluorescent material of one of three primary colors of light.

74. A driving method of a liquid crystal display device which includes a first cold cathode tube and a second cold cathode tube, respectively containing fluorescent materials, for illuminating pixels with light which is in accordance with driving signals, and in which the driving signals are controlled so that changes in luminance of the first and second cold cathode tubes with respect to time substantially coincide with one another in the vicinity of rise time and fall time per one vertical period,

said first cold cathode tube containing only a fluorescent material of green among three primary

colors of light, and said second cold cathode tube containing fluorescent materials of red and blue among the three primary colors of light,

said method controlling the driving signals which are respectively applied to said first and second cold cathode tubes.

75. A driving method of a liquid crystal display device which includes first through third cold cathode tubes, respectively containing fluorescent materials, for illuminating pixels with light which is in accordance with driving signals, and in which the driving signals are controlled so that changes in luminance of the first through third cold cathode tubes with respect to time substantially coincide with one another in the vicinity of rise time and fall time per one vertical period,

said first cold cathode tube containing only a fluorescent material of green among three primary colors of light, and said second cold cathode tube containing only a fluorescent material of red among the three primary colors of light, and said third cold cathode tube containing only a fluorescent material of blue among the three primary colors of light,

said method controlling the driving signals which

are respectively applied to said first through third cold cathode tubes.

76. A driving method of a liquid crystal display device which includes a first cold cathode tube and a second cold cathode tube, respectively containing fluorescent materials, for illuminating pixels with light which is in accordance with driving signals, and in which the driving signals are controlled so that changes in luminance of the first and second cold cathode tubes with respect to time substantially coincide with one another in the vicinity of rise time and fall time per one vertical period,

said first cold cathode tube containing fluorescent materials of green and red among three primary colors of light, and said second cold cathode tube containing only a fluorescent material of blue among the three primary colors of light,

said method controlling the driving signals which are respectively applied to said first and second cold cathode tubes.

77. The driving method of the liquid crystal display device as set forth in claim 74, wherein the respective driving signals are controlled so that an

emission timing of said first cold cathode tube is earlier than an emission timing of the other cold cathode tube.

78. The driving method of the liquid crystal display device as set forth in claim 75, wherein the respective driving signals are controlled so that an emission timing of said first cold cathode tube is earlier than emission timings of the other cold cathode tubes.

79. The driving method of the liquid crystal display device as set forth in claim 76, wherein the respective driving signals are controlled so that an emission timing of said first cold cathode tube is earlier than an emission timing of the other cold cathode tube.

80. The driving method of the liquid crystal display device as set forth in claim 74, wherein the respective driving signals are controlled so that a dimming timing of said first cold cathode tube is earlier than a dimming timing of the other cold cathode tube.

81. The driving method of the liquid crystal display device as set forth in claim 75, wherein the respective driving signals are controlled so that a dimming timing of said first cold cathode tube is earlier than dimming timings of the other cold cathode tubes.

82. The driving method of the liquid crystal display device as set forth in claim 76, wherein the respective driving signals are controlled so that a dimming timing of said first cold cathode tube is earlier than a dimming timing of the other cold cathode tube.

83. The driving method of the liquid crystal display device as set forth in claim 75, wherein the respective driving signals are controlled so as to set forward respective emission timings of said first through third cold cathode tubes in this order.

84. The driving method of the liquid crystal display device as set forth in claim 75, wherein the respective driving signals are controlled so as to set forward respective dimming timings of said first through third cold cathode tubes in this order.

85. The driving method of the liquid crystal display device as set forth in claim 75, wherein the respective driving signals are controlled so that an emission timing of said third cold cathode tube is later than emission timings of the other cold cathode tubes.

86. An illumination device for illuminating pixels of a liquid crystal display device, luminance of said illumination device including an emitting period and a dimming period of a certain phase with respect to a vertical synchronize signal, and the dimming period being in a range of 10 % to 90 % of one vertical period, said illumination device independently controlling the emitting period and the dimming period of an emitter of at least one of three primary colors of light.

87. The illumination device as set forth in claim 86, wherein said emitter is one of a cold cathode tube, an electroluminescence element, and a hot cathode tube.

88. The illumination device as set forth in claim 86, wherein said emitter emits only green among the three primary colors of light.

89. The illumination device as set forth in claim 86, wherein said emitter emits only blue among the three primary colors of light.

90. The illumination device as set forth in claim 86, wherein said emitter includes a first cold cathode tube containing a fluorescent material having a relatively longer response time among the three primary colors, and a second cold cathode tube containing a fluorescent material having a relatively shorter response time among the three primary colors.

91. The illumination device as set forth in claim 90, wherein said first cold cathode tube contains a fluorescent material of green, and said second cold cathode tube contains fluorescent materials of red and blue.

92. The illumination device as set forth in claim 90, wherein said first cold cathode tube contains fluorescent materials of green and red, and said second cold cathode tube contains a fluorescent material of blue.

93. The illumination device as set forth in claim

86, wherein said emitter includes a first cold cathode tube containing a fluorescent material having a relatively longer response time among the three primary colors, a second cold cathode tube containing a fluorescent material having a response time of an intermediate length, and third cold cathode tube containing a fluorescent material having a relatively shorter response time.

94. The illumination device as set forth in claim 90, comprising an inverter for driving the emitter, wherein a phase of an input signal with respect to the inverter is modulated, so as to independently control the emitting period and the dimming period.

95. The illumination device as set forth in claim 93, comprising an inverter for driving the emitter, wherein a phase of an input signal with respect to the inverter is modulated, so as to independently control the emitting period and the dimming period.

96. The illumination device as set forth in claim 90, comprising an inverter for driving the emitter, wherein an amplitude of an input signal with respect to the inverter is modulated, so as to independently

control the emitting period and the dimming period.

97. The illumination device as set forth in claim 93, comprising an inverter for driving the emitter, wherein an amplitude of an input signal with respect to the inverter is modulated, so as to independently control the emitting period and the dimming period.

98. The illumination device as set forth in claim 90, comprising an inverter for driving the emitter, wherein a pulse width of an input signal with respect to the inverter is modulated, so as to independently control the emitting period and the dimming period.

99. The illumination device as set forth in claim 93, comprising an inverter for driving the emitter, wherein a pulse width of an input signal with respect to the inverter is modulated, so as to independently control the emitting period and the dimming period.

100. The illumination device as set forth in claim 90, wherein an emitting period of the first cold cathode tube, which is independently controlled, is controlled such that it substantially coincides with an emitting period of the other cold cathode tube.

101. The illumination device as set forth in claim 93, wherein an emitting period of the first cold cathode tube, which is independently controlled, is controlled such that it substantially coincides with emitting periods of the other cold cathode tubes.

102. The illumination device as set forth in claim 93, wherein emitting periods of the second or third cold cathode tube, which is independently controlled, is controlled such that it substantially coincides with an emitting period of the first cold cathode tube.

103. The illumination device as set forth in claim 94, wherein emitting periods of the second or third cold cathode tube, which is independently controlled, is controlled such that it substantially coincides with an emitting period of the first cold cathode tube.

104. The illumination device as set forth in claim 96, wherein emitting periods of the second or third cold cathode tube, which is independently controlled, is controlled such that it substantially coincides with an emitting period of the first cold cathode tube.

105. The illumination device as set forth in claim

98, wherein emitting periods of the second or third cold cathode tube, which is independently controlled, is controlled such that it substantially coincides with an emitting period of the first cold cathode tube.

106. The illumination device as set forth in claim 94, wherein respective emitting periods of said first through third cold cathode tubes, which are independently controlled, are controlled so that they substantially coincides with one another.

107. The illumination device as set forth in claim 95, wherein respective emitting periods of said first through third cold cathode tubes, which are independently controlled, are controlled so that they substantially coincides with one another.

108. The illumination device as set forth in claim 96, wherein respective emitting periods of said first through third cold cathode tubes, which are independently controlled, are controlled so that they substantially coincides with one another.

109. The illumination device as set forth in claim 97, wherein respective emitting periods of said first

through third cold cathode tubes, which are independently controlled, are controlled so that they substantially coincides with one another.

110. The illumination device as set forth in claim 98, wherein respective emitting periods of said first through third cold cathode tubes, which are independently controlled, are controlled so that they substantially coincides with one another.

111. The illumination device as set forth in claim 99, wherein respective emitting periods of said first through third cold cathode tubes, which are independently controlled, are controlled so that they substantially coincides with one another.

112. The illumination device as set forth in claim 93, wherein said first cold cathode tube contains only a fluorescent material of green.

113. The illumination device as set forth in claim 94, wherein said first cold cathode tube contains only a fluorescent material of green.

114. The illumination device as set forth in claim

96, wherein said first cold cathode tube contains only a fluorescent material of green.

115. The illumination device as set forth in claim 98, wherein said first cold cathode tube contains only a fluorescent material of green.

116. The illumination device as set forth in claim 100, wherein said first cold cathode tube contains only a fluorescent material of green.

117. The illumination device as set forth in claim 93, wherein said first cold cathode tube contains fluorescent materials of green and red.

118. The illumination device as set forth in claim 94, wherein said first cold cathode tube contains fluorescent materials of green and red.

119. The illumination device as set forth in claim 96, wherein said first cold cathode tube contains fluorescent materials of green and red.

120. The illumination device as set forth in claim 98, wherein said first cold cathode tube contains

fluorescent materials of green and red.

121. The illumination device as set forth in claim 100, wherein said first cold cathode tube contains fluorescent materials of green and red.

122. The illumination device as set forth in claim 90, wherein said cold cathode tubes are provided on an edge of an illumination unit which is covered with a photoconductor, and illuminate an entire surface of the liquid crystal display device with an equal phase.

123. The illumination device as set forth in claim 93, wherein said cold cathode tubes are provided on an edge of an illumination unit which is covered with a photoconductor, and illuminate an entire surface of the liquid crystal display device with an equal phase.

124. The illumination device as set forth in claim 90, wherein said cold cathode tubes are provided in a scanning direction of the liquid crystal display device.

125. The illumination device as set forth in claim 93, wherein said cold cathode tubes are provided in a

scanning direction of the liquid crystal display device.

126. The illumination device as set forth in claim 124, wherein the cold cathode tubes are divided into a plurality of areas having emitting periods of different phases with respect to the vertical synchronize signal, cold cathode tubes having emitting periods of an equal phase making up an emitter group to illuminate the same area of the liquid crystal display device, areas of different illumination areas being substantially uniform and having phases which are shifted one another with substantially equal intervals in order in the scanning direction, and a phase difference dividing one vertical period into equal parts.

127. The illumination device as set forth in claim 125, wherein the cold cathode tubes are divided into a plurality of areas having emitting periods of different phases with respect to the vertical synchronize signal, cold cathode tubes having emitting periods of an equal phase making up an emitter group to illuminate the same area of the liquid crystal display device, areas of different illumination areas being substantially uniform and having phases which are shifted one another

with substantially equal intervals in order in the scanning direction, and a phase difference dividing one vertical period into equal parts.

128. The illumination device as set forth in claim 126, wherein the number of said emitter group is in a range of 4 to 48.

129. The illumination device as set forth in claim 127, wherein the number of said emitter group is in a range of 4 to 48.

130. An image display device, comprising:

a plurality of display elements, making up a screen, for modulating light according to image data which is applied while being scanned; and

an illuminating section for illuminating the display elements,

wherein:

when those of said display elements having the same scanning time make up a display element band, said display element band is grouped into display element groups in order of earlier scanning time and to include at least one display element band in one display element group, and

said illuminating section includes a plurality of illuminating elements, at least one of which is provided for each display element group, and

each illuminating element illuminates said display elements per said display element group while undergoing change between first luminance and second luminance which is darker than the first luminance, at a period of one frame time of the screen and at a timing of change which is different in each display element group, and

between said illuminating elements are provided a partition member for parting adjacent illuminating elements.

131. An image display device, comprising:

a plurality of display elements, making up a screen, for modulating light according to image data which is applied while being scanned; and

an illuminating section for illuminating the display elements,

wherein:

when those of said display elements having the same scanning time make up a display element band, said display element band is grouped into display element groups in order of earlier scanning time and to include

at least one display element band in one display element group, and

said illuminating section includes a plurality of illuminating elements, at least one of which is provided for each display element group, and a reflecting plate for reflecting light from the illuminating elements in a direction toward the display elements, and

each illuminating element illuminates said display elements per said display element group while undergoing change between first luminance and second luminance which is darker than the first luminance, at a period of one frame time of the screen and at a timing of change which is different in each display element group, and

said reflecting plate has concave portions in which the illuminating elements are disposed.

132. An illumination device for illuminating display elements of a display device of a shutter type which includes display elements for switching ON/OFF transmission of light according to display data,

wherein:

said illumination device includes a plurality of illuminating elements which undergo change between

first luminance and second luminance which is darker than the first luminance within one vertical period while being scanned, so as to illuminate the display elements, and

said illuminating elements are grouped into illuminating element groups to include at least one illuminating element in one illuminating element group, and

a timing of change of luminance of each illuminating element is different in each illuminating element group, and

the illuminating element groups are divided so that illuminating elements of adjacent illuminating element groups illuminate display elements in different areas of the display device of a shutter type.

133. The illumination device as set forth in claim 132, wherein said display device of a shutter type is a liquid crystal display device.

134. The illumination device as set forth in claim 132, comprising a partition member, provided between the illuminating element groups, for dividing the illuminating element groups.

135. The illumination device as set forth in claim 132, comprising a reflecting plate, dividing the illuminating element groups, for reflecting emitted light of the illuminating elements of the respective illuminating element groups toward a specific upper area.

136. A driving method of an illumination device which illuminates display elements of a display device of a shutter type having display elements for switching ON/OFF transmission of light according to display data,

said illumination device including a plurality of illuminating elements which undergo change between first luminance and second luminance which is darker than the first luminance within one vertical period while being scanned, so as to illuminate the display elements,

said illuminating elements being grouped into illuminating element groups to include at least one illuminating element in one illuminating element group,

a timing of change of luminance of the illuminating elements being different in each illuminating element group,

the illuminating element groups being divided so that the illuminating elements of adjacent illuminating

element groups illuminate display elements in different areas of the display device of a shutter type,

wherein:

said driving method causes change in luminance of the illuminating elements between the first luminance and the second luminance within one vertical period, and

a timing of change of luminance has a certain phase with respect to a scanning timing of the display elements which are illuminated by each illuminating element.

137. An image display device, comprising:

a plurality of display elements, making up a screen, for modulating light according to image data which is applied while being scanned; and

an illuminating section for illuminating the display elements,

wherein:

when those of said display elements having the same scanning time make up a display element band, said display element band is grouped into display element groups in order of earlier scanning time and to include at least one display element band in one display element group, and

said illuminating section illuminates said display elements per said display element group while undergoing change between first luminance and second luminance which is darker than the first luminance and brighter than an OFF state, at a period of one vertical period of the screen and at a timing of change which is different in each display element group.

138. The illumination device as set forth in claim 137, wherein said illuminating section sets the second luminance in each display element group at least from the time when a display element band A having the earliest scanning time is scanned, to the time 1/10 of one vertical period is elapsed.

139. The illumination device as set forth in claim 137, wherein said illuminating section sets the second luminance in each display element group at least from the time after an elapsed 1/10 time period of one vertical period from the time a display element band A having the earliest scanning time is scanned, to the time another 1/10 time period of one vertical period is elapsed.

140. An emitter having a period of emitting light

at a first luminance level and a period of emitting light at a second luminance level within a vertical period, said first luminance level and said second luminance level being different from each other and brighter than an OFF state.

141. The emitter as set forth in claim 140, comprising a cold cathode tube.

142. The emitter as set forth in claim 140, comprising a light-emitting diode.

143. The emitter as set forth in claim 140, comprising an electroluminescence element.

144. The emitter as set forth in claim 140, comprising a hot cathode tube.

145. The emitter as set forth in claim 140, comprising a mercury lamp.

146. The emitter as set forth in claim 140, comprising a halogen lamp.

147. The emitter as set forth in claim 140,

comprising a laser.

148. A driving method of an emitter, wherein a first driving signal and a second driving signal are inputted into an emitter at different timings within a vertical period, so that luminance of the emitter becomes different when the emitter receives the first driving signal and when the emitter receives the second driving signal, and that the luminance by the first driving signal and the luminance by the second driving signal are brighter than an OFF state.

149. A liquid crystal display device, comprising:
an emitter for illuminating pixels with light which is in accordance with a driving signal; and
emission control means for controlling the driving signal so that one vertical synchronize period includes two or more of separate periods of reduced luminance of the emitter, and that luminance of the emitter is changed by a period of one vertical synchronize period.

150. The liquid crystal display device as set forth in claim 149, wherein said emission control means is adapted to incorporate a small pulse in the driving signal of a certain period of reduced luminance, which

is provided per one vertical synchronize signal, so as to divide the period of reduced luminance.

151. The liquid crystal display device as set forth in claim 149, wherein said emission control means is further adapted to slack a rise and a fall of a waveform of the driving signal.

152. The liquid crystal display device as set forth in claim 149, wherein said emitter is one of a cold cathode tube, a light-emitting diode element, an electroluminescence element, a hot cathode tube, a mercury lamp, a halogen lamp, and a laser.

153. An illumination device, comprising:

an emitter for emitting light which is in accordance with a driving signal, luminance of said emitter being periodically changed; and

emission control means for controlling the driving signal so that one period includes two or more separate periods of reduced luminance of the emitter.